Design a Tacit Knowledge Sharing System

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ABSTRACT

Two important major factors made the companies survive; time and cost. The minimum time that can reach the customer with minimum cost. Knowledge can be classified into two main parts: tacit knowledge and explicit knowledge. Tacit knowledge is an accumulated knowledge and more complex and more ambiguous than explicit knowledge. Sharing the knowledge will decrease the risk associated with the new development. It is the way to reduce the time and cost in the development processes. In this research we will highlight the effect of Islamic prospective on sharing the tacit knowledge. Many of working staff in any organization believe that their tacit knowledge should not be shared with others due to the lack of trust. This research aims to develop a conceptual framework for knowledge sharing from Islamic perspective. This Model is based on developing Knowledge Circles (KC) which similar to quality circles. These circles will be the source for the human information storage. This storage will guide the management to reduce the time and the cost. The roles of certain factors that influence knowledge sharing behaviour in industrial organization are Affect-based trust and shared value.

***Keywords*: knowledge sharing, tacit knowledge, Islamic values, Knowledge Circles (KC).**

1. Introduction

Knowledge sharing involves a set of behaviors that aid the exchange of acquired knowledge (Chow and Chan, 2008). Sharing the accumulative knowledge in any organization is essential for surviving in the competition market. Nonaka and Takeuchi (1995); Dhanaraj et al., (2004) categorize the knowledge into two main parts; tacit knowledge and explicit knowledge. Tacit knowledge based on common sense, and explicit knowledge based on academic accomplishment are both underutilized (Smith, 2001). Tacit knowledge is the knowledge residing in the minds of employees that has not been documented while the explicit is the knowledge that has been documented. Thus, tacit knowledge is understood and remains within a human mind. It is expressed by behavior, and is difficult to share and diffuse throughout an organization. Therefore, the tacit knowledge is the knowledge that needs to be shared through the organization staff. Tacit knowledge should be shared through face-to-face and interpersonal interactions.

However, transferring the tacit knowledge to new staff is slow, costly, and uncertain if it cannot be codified and can be acquired by practice (Grant, 1996).

Nonaka and Takeuchi (1995) stated that knowledge sharing is the process of interpersonal interactions and the interaction between explicit and tacit knowledge. Knowledge creation is the result of interaction between explicit and tacit knowledge. There are four models of knowledge creation: socialization, externalization, combination, and internalization. The knowledge sender transforms his or her tacit knowledge into tacit knowledge and explicit knowledge through the processes of socialization and externalization, respectively. Moreover, the knowledge sender transforms his or her explicit knowledge into explicit knowledge and tacit knowledge through the processes called combination and internalization. It is necessary to invoke two different roles in this case, that of a knowledge sender and that of a recipient in the interpersonal interaction. Sharing efficiency is highly dependent on the degree of interaction and cognition between senders and recipients.

Prophet Muhammad (peace be upon him) said: "Whoever is asked about knowledge and hides it, a bridle made of fire will be tied around his mouth on the Day of Resurrection" (narrated by Abu Hurairah, Hadith no. 8988).

Prophet Muhammad (peace be upon him) said: "God, His angels and all those in Heavens and on Earth, even ants in their hills and fish in the water, call down blessings on those who instruct others in beneficial knowledge." (narrated by Al-Tirmidhi, Hadith 422) and also he said "The seeking of knowledge is obligatory for every Muslim." Al-Tirmidhi, Hadith 74).

Mentioned in the Al Quran, that those how hide the knowledge are cursed by Allah and cursed by the cursers (2:159) "Verily those who hide that which we have sent down of evidence and the guidance, after we have expounded it's unto mankind in the Book, these! – they are the ones cursed by Allah and cursed by the cursers").

إِنَّ ٱلَّذِينَ يَكْتُمُونَ مَآ أَنزَلْنَا مِنَ ٱلْبَيِّنَٰتِ وَٱلْهُدَىٰ مِنۢ بَعْدِ مَا
بَيَّنَّٰهُ لِلنَّاسِ فِى ٱلْكِتَٰبِ ۙ أُو۟لَٰٓئِكَ يَلْعَنُهُمُ ٱللَّهُ وَيَلْعَنُهُمُ
ٱللَّٰعِنُونَ ﴿١٥٩﴾

One of the most referenced definitions of knowledge in the literature is provided by Davenport and Prusak (1998): "Knowledge is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information.

This paper aims to discuss the knowledge sharing behavior and the limitations in manufacturing engineering. The study determines some of the factors, which are recognized as the inhibitors of sharing the knowledge among team members who are developing new manufacturing techniques. The effect of using knowledge sharing in Islamic environment reinforces the concept of knowledge sharing.

Knowledge sharing has been identified as a major area for knowledge management. The potential benefits of knowledge sharing for the organization are clear: knowledge is spread through the organization, it can be used for innovative services or products, the wheel is not re-invented, products and services may be of higher quality, customer will be better satisfied and so on (Krogh, 1998).

The capabilities of a firm, or any organization, lie primarily in the organizing principles by which individual and functional expertise is structured, coordinated, and communicated. Firms are social communities which use their relational structure and shared coding schemes to enhance the transfer and communication of new skills and capabilities (Zander and Kogut, 1995).

Bock and Kim, (2002) point out that organization are likely to run into difficulties if the knowledge of individual employee is not well-managed. Knowledge sharing or transfer is perceived to be the most essential activity. Knowledge sharing: means the exchange of knowledge and share of experience among different organizational units (Davenport and Prusak, 1998).

2. Literature Review

The sharing of knowledge between employees in any organization is essential to transfer the knowledge from the seniors to the juniors, which leads to effective development of manufacturing systems. Some researchers found that knowledge sharing is critical to a firm's success (Davenport and Prusak, 1998) as it leads to faster knowledge deployment to portions of the organization that can greatly benefit from it (Syed-Ikhsan and Rowland, 2004) because it significantly increases the resources of an organization and decreases time wasted in trial-and error (Lin, 2007).

To enable a successful manufacturing Engineering methods, communication among the people involved is important, based on Reinhardt (2004), communication is the sine qua non of successful software engineering. It is an obvious way for project members to coordinate work in software development environments. Kraut and Steerer (1995) defined communication in the context of software engineering: In industry, communication means that different people are working on a common project agree to a common definition of what they are building, share information and mesh their activities.

Rus & Lindvall (2002) addressed problems can KM help solve for software organizations, challenges of applying KM in software engineering, success factors, and how can KM leverage all the knowledge that exists in software organizations. The authors address the motivation of using KM in software engineering as; decreasing time and cost and increasing quality, making better decisions, acquiring knowledge about new technologies, accessing domain knowledge, sharing knowledge about local policies and practices, capturing knowledge and knowing who knows what and Collaborating and sharing knowledge.

Dittrich et al. (2009), presented empirical research on customization practices of ERP systems as an example of software development based on customization of standard software,

The use of previous developed software is important to develop a new one, the Authors highlighted that knowledge sharing among the consultancies and between consultancies and ERP vendors is important.

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Amin et al. (2011) provided a theoretical framework of creativity in the context of Global Software Development (GSD). Using the methodology of literature survey, factors such as knowledge sharing, software engineering occupational stress and GSD communication barriers have been hypothesized to be effecting creativity directly or indirectly. The framework highlighted the direct or indirect impact of aforementioned factors, including knowledge sharing, occupational stress and GSD communication barriers on software engineer's creativity. The Authors hypothesized that occupational stress among software engineers impedes their knowledge sharing behavior, and Knowledge sharing has a positive impact on software engineer's creativity, however the results of the survey was not discussed, as the Authors presented a theoretical model only.

3. Proposed Conceptual Framework

Sun Tzu was a Chinese military strategist who wrote the famous treatise 'The Art of War.' Believing in the Chinese saying 'the marketplace is a battlefield. Two important major factors made the companies winning the market battle; time and cost. The minimum time that can reach the customer and with minimum cost is the way to effective way to any manufacturing enterprise to survive. The secret for minimizing the time and cost is the knowledge sharing by developing an information system that is available to all enterprise members. When we are talking about knowledge sharing, we are talking about research and development, by sharing our previous experience. To develop a model the relationship between the different factors should be identified. Figure 1 is concluding the relationship between the different manufacturing activities.

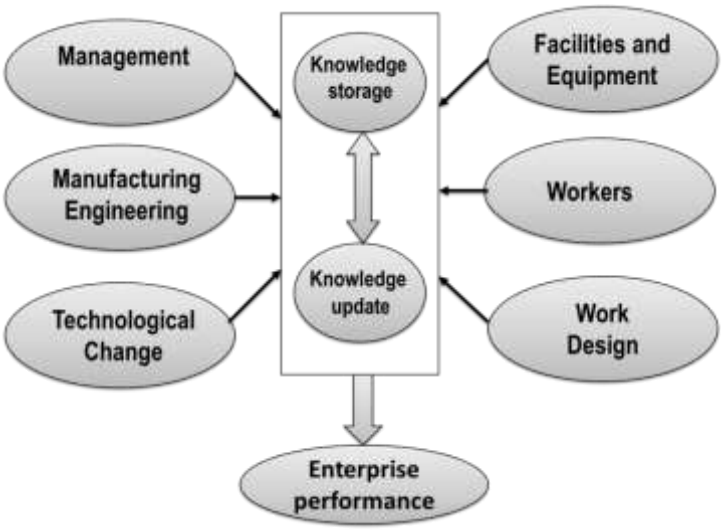

Figure 1: Knowledge management and its relationship enterprise performance

From the figure above, it is clear that the core of any improvement is the accumulative experience of the manufacturing organization.

Trust ties together an attentive system, which forms the collective mind required for reliable performance (Song, 2009). Trust is based on expectations and is therefore formed in the consciousness of project team members (Meyerson D, Weick KE, and Kramer RM, 1996). Thus, trust has an indirect effect on the accessibility and efficient transfer of tacit knowledge. (Song, 2009). However, the knowledge source or the knowledge holder may share the knowledge with other members of the organization due to either benevolence-based trust or/and competence-based trust. Figure 2 concluded the relationship between the knowledge source and the knowledge seeker. Actually, both of them should trust the other.

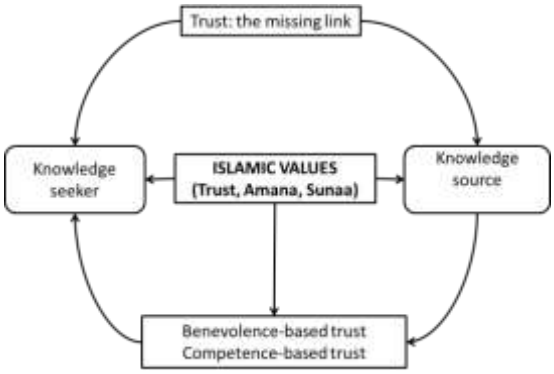

Figure 2: knowledge sharing system

Tacit knowledge cannot be written down, thus can only be transferred using a give-and-take process by which participants develop, over time, an understanding of the complexities involved in a situation (Arnett and Wittmann 2013; Inkpen & Dinur, 1998). Therefor the tacit

system should have human factors that can transfer the knowledge from the source to the seeker. Kling & Star (1998) stated that Human Centered Systems refer to systems that are (Murphy et al., 2004):

a. Based on an analysis of the task being performed by a human that the system is aiding
b. Performance monitoring in relation to human benefits
c. Developed to take human skills into account
d. Easily adaptable to the changing needs of the human users

The potential importance of the human-centered approach to tacit knowledge has been succinctly stated by Gill (1996).

The proposed framework is shown in figure 3. The figure concluded the system by the following steps:

1. Interaction seminars between the new staff and the experienced staff based on Islamic values.
2. Workshops on cumulative experience based on Islamic values.
3. Develop a new information system based on the human information.
4. Make easy and free access for the employee to the system.
5. Establish a new system similar to the quality circles for frequently discussions to share the latest information called Knowledge Circles (KC). This cannot achieve without robust understanding of Islamic values.
6. Store all these information in a system called human knowledge source.

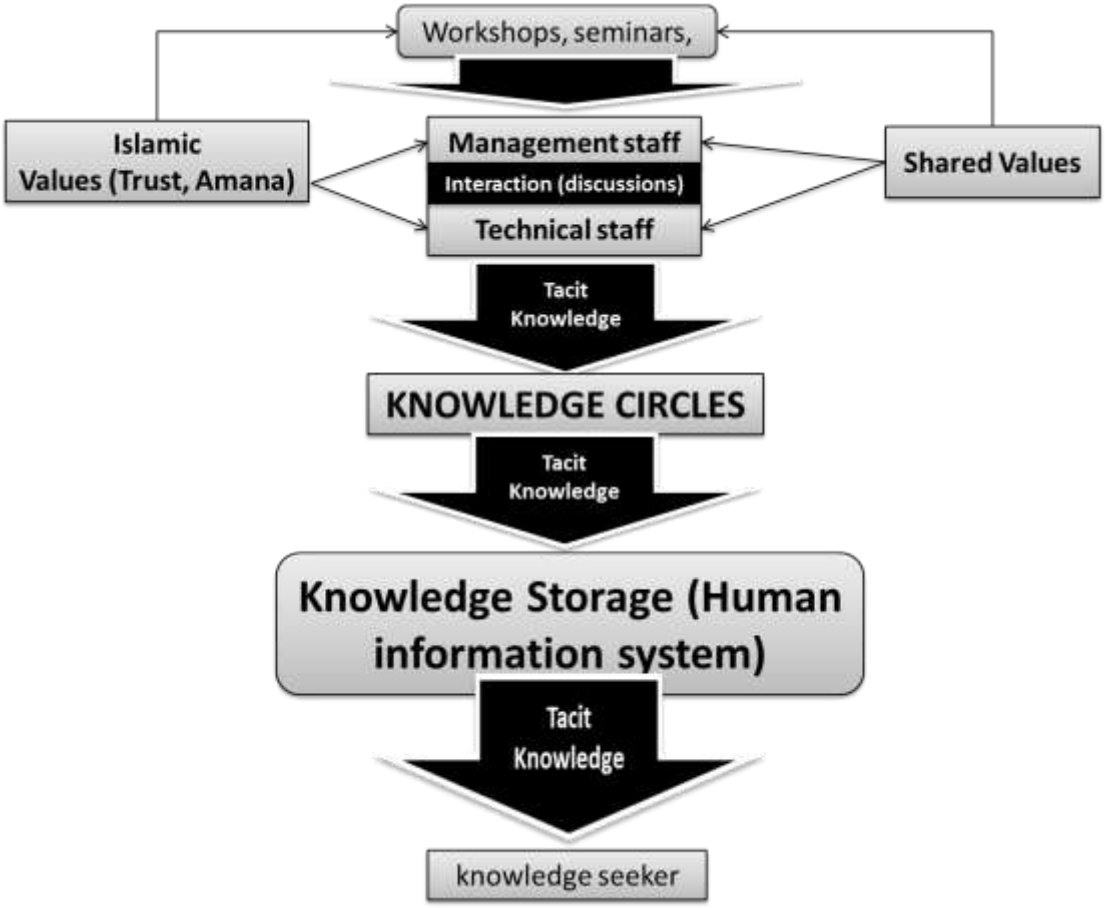

Figure 3 Conceptual Framework

4. Discussion

Knowledge sharing Implementation in any organizations can lead to competitive advantages. Training, workshops, discussions, and seminars are positively associated with the level of knowledge sharing within an organization. The main difficulty for the proposed frame work is how to transfer the information gained from the KC to the way that can be stored. Knowledge sharing system based on trust and Islamic values will positively associate with the level of knowledge sharing.

5. Conclusions

The Islamic values and behavior should be the dominate factor that make the members contribute to this information system. A worker, by accepting a job, accepts the employer's Amanah (trust) in him to perform it with honesty, trust and perfection (Seidu, 2008). "Any time the Prophet (PBUH) mentions about employer-employee relationship he relates it to

brotherhood. He (PBUH) says, "Those who work for you are your brothers: God has ordained them to be your subordinates." Based on the emphasis on brotherhood, Dar al Fikr al Islam (1972) concludes that: "This relationship translates into a brotherhood relationship between an employer and an employee by Islamic standards. Therefore, both parties should work for mutual good with honesty, love, sincerity, trust, co-operation etc., for their success and prosperity."

References

Abdullah Mohammed Seidu, (2008), Islamic concept of employer-employee relationships an instrument for managing human resources and certain operational risk exposures Islamic Economics Research Centre, King Abdul Aziz University, Jeddah, Saudi Arabia pp 1-19.

Amin, A. and Basri, S. and Hassan, M.F. (2011) Occupational Stress, Knowledge Sharing and GSD Communication Barriers as Predictors of Software Engineer's Creativity. In: The IEEE International Conference on Industrial Engineering and Engineering Management (IEEM), 6-9 Dec 2011, Singapore.

Arnett, D. B., & Wittmann, C. M. (2013). Improving marketing success: The role of tacit knowledge exchange between sales and marketing. Journal of Business Research.

Bock, G. W. & Kim, Y. G. (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal*, 15 (2), 14-21.

Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. Information & Management, 45(7), 458-465.

Davenport TH, Prusak L (1998). Working knowledge: How organizations manage what they know. Harvard Business School Press, Boston, MA.

Dhanaraj, C., Lyles, M. A., Steensma, H. K., & Tihanyi, L. (2004). Managing tacit and explicit knowledge transfer in IJVs: the role of relational embeddedness and the impact on performance. Journal of International Business Studies, 35(5), 428-442.

Dittrich, Y., Vaucouleur, S.; Giff, S (2009), ERP Customization as Software Engineering: Knowledge Sharing and Cooperation, Software, IEEE , vol.26, no.6, pp.41-47, Nov.-Dec. 2009, doi: 10.1109/MS.2009.173

Gill, K.S. (1996). Knowledge and the Post-Industrial Society. London, Springer Verlag. In: Information Society (K.S. Gill, Ed.). 3-29.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic management journal, 17, 109-122.

Inkpen, A. C., & Dinur, A. (1998). Knowledge management processes and international joint ventures. Organization Science, 9(4), 454-468.

Kling, R., & Star, S. L. (1998). Human centered systems in the perspective of organizational and social informatics. ACM SIGCAS Computers and Society, 28(1), 22-29.

Kraut R.E. and L.A. Streeter. Coordination in software development. Commun. ACM, 38(3):69–81, 1995.

Krogh, G. von. Care in knowledge creation. California Management Review, 1998, 40, 133-153.

Laird, M. W. (1999, April 14-16). Knowledge sharing: A perspective from Xerox, the document company, 123-130. This article is based on remarks delivered at the 24th Annual AAAS Colloquium on Science and Technology Policy, held April 14Â–16, 1999, in Washington, DC. Retrieved February 12, 2009 from http://www.aaas.org/ spp/yearbook/2000/ ch14.pdf

Lin C (2007). To share or not to share: modeling knowledge sharing using exchange ideology as a moderator. Personal Rev., 36(3): 457- 475.

Meyerson, D., Weick, K. E., & Kramer, R. M. (1996). Swift trust and temporary groups. Trust in organizations: Frontiers of theory and research, 166, 195.

Murphy, F., Stapleton, L., & Smith, D. (2004). Tacit Knowledge And Human Centred Systems: The Key To Managing The Social Impact Of Technology.

Nonaka I. and H. Takeuchi. The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press, 1995.

Panteli, N., & Sockalingam, S. (2005). Trust and conflict within virtual inter-organizational alliances: a framework for facilitating knowledge sharing. Decision Support Systems, 39(4), 599-617.

Reinhardt, W. 2009. Communication is the key –Support Durable Knowledge Sharing in Software Engineering by Microblogging. In Proc. of the SENSE Workshop, Software Engineering within Social Software Environments (collocated with the Conf. on Software Engineering (SE2009), Germany, http://www.se2009.de/.

Rus, I. and Lindvall, M. (2002) "Knowledge management in software engineering," Software, IEEE , vol.19, no.3, pp.26-38, May-June 2002.

Smith, E. A. (2001). The role of tacit and explicit knowledge in the workplace. Journal of knowledge Management, 5(4), 311-321.

Song, D. (2009). The tacit knowledge-sharing strategy analysis in the project work. International Business Research, 2(1), P83.

Syed-Ikhsan S, Rowland F (2004). Knowledge management in public organizations: a study on the relationship between organizational elements and the performance of knowledge transfer. J. Knowl. Manage., 8(2): 95-111